

Energy & Water Development
Listed in alphabetical order by organization

Central Maine Community College (CMCC), Alternative Energy Development: Educating Students & Reducing Costs, Auburn, Maine -- \$290,000

This would support installation, teaching, demonstration and use of sustainable energy technologies that promote the economic and environmental health of the college and the communities it serves. With fuel costs expected to rise, making greater use of sustainable, affordable, and environmentally sound sources of energy is an excellent use of taxpayer dollars. Also, local residents, contractors, designers, and other will be able to make use of the campus energy lab to learn how to incorporate more alternative energy in their work, homes and businesses.

Central Maine Community College Education Foundation, Central Maine Community College Northeast Regional Wind Energy Demonstration, Auburn, Maine - \$1,808,000

This will provide for renewable energy and energy conservation research and will assist in the development of additional wind projects throughout rural and urban areas in Maine. At the end of the project, CMCC will have a small-scale wind farm on campus, an alternative energy program concentration for its students, a laboratory for the new program, and will provide to the general public a regional information center for small wind production.

Hydro Photon, Ultraviolet (UV) Light Emitting Diode (LED) System for Disinfection of Contaminated Drinking Water, Blue Hill, Maine -- \$3,000,000

Hydro Photon seeks to develop a new technology for UV disinfection of drinking water through use of a new, environmentally-clean and energy-efficient approach to the production of ultraviolet light. Funding will go toward developing portable UV LED water purification systems that will be tested to Environmental Protection Agency and National Science Foundation standards for disinfection. These filters will have many applications: travelling abroad; disaster recovery efforts; workers in the field such as remote mining or drilling sites, forestry workers, armed forces; and all others for whom safe potable water infrastructure is inaccessible.

ORPC Maine, LLC, Tidal Energy Site Characterization and Analysis, Eastport, Maine -- \$470,000

A national effort to increase renewable energy development and reduce dependence on fossil fuels requires a long-term public policy commitment. The funding of this project will assist with site evaluation and analysis necessary for permitting the first commercial scale tidal energy project in the United States. This project will provide a baseline of environmental data for public domain use that will assist in further responsible development of ocean energy resources.

ORPC Maine, LLC, Tidal Energy Environmental Monitoring Program, Eastport, Maine -- \$500,000

The project will establish the environmental baseline for tidal energy from Maine's coastal waters, making data publicly available. Funds will be used to purchase equipment such as sonar, cameras, sensors and other gear necessary for environmental monitoring.

Town of Fort Kent, Maine, St. John and Fish Rivers, Maine Flood Study, Fort Kent, Maine -- \$100,000

On April 29 – May 2, 2008, as a result of record rainfall and snowmelt, the St. John River and Fish River severely flooded Fort Kent, Maine. President Bush issued a major disaster declaration and the town continues to recover from the public and private infrastructure damages. The Army Corps of Engineers is restoring the damaged dike system that protected the downtown region, but it is clear that existing flood control infrastructure was inadequate for this historic level of flooding that Fort Kent experienced last year. Funds would go toward a flood control investigation that examines flood protection and improvements to the existing levee system.

Town of Machiasport, Bucks Harbor, Machiasport, Maine – \$750,000

The American Recovery and Reinvestment Act (ARRA) provided \$1,012,000 in Army Corps funding for Bucks Harbor dredging. In order to deepen the harbor under the Section 107 authority, the Army Corps needs funding to first remove the maintenance shoal material that lies on top. If operation and maintenance funding is not provided, the project is in danger of losing its ARRA funds. Bucks Harbor supports an active commercial fishery and retention of this fleet is important to the economic vitality of the town. The harbor is also the site of a large aquaculture operation focused on raising salmon.

Town of Tremont, Bass Harbor Dredge Project, Tremont, Maine -- \$60,000

The American Recovery and Reinvestment Act provided \$1,386,000 in Army Corps funding for Bass Harbor dredging. Funds for operation and maintenance are needed to complete the project. The existing Federal Navigation Project for Bass Harbor was authorized by the Chief of Engineers May 7, 1962 under the continuing authority of Section 107 and was completed in August 1964. Federal funding of this project will contribute to economic development that is consistent with protecting the environment of Bass Harbor.

University of Maine, Environmental Impact Protocols for Tidal Power, Orono, Maine -- \$3,000,000

The Quoddy region in Maine has tidal energy with the greatest commercial potential of any site in the 48 contiguous United States. But, it also has some of the most diverse biological resources in Maine. Currently there are no accepted protocols for tidal energy environmental assessment. This project will develop such protocols and a model monitoring system such that tidal power generators will have a clear understanding of the environmental impact process and costs, which

will ultimately accelerate the deployment of tidal power generation systems in suitable locations in Maine and the United States

Unique expertise exists at the University of Maine in proximity to these sites for tidal turbines. Faculty is active in the modeling of ocean circulation as well as work with licensees on the optimization of turbines and arrays. Expertise exists in fish biology, benthic ecology and sediment transport, three key components of the evaluation of the tidal turbines.

University of Maine Next Generation Composite Wind Blade Manufacturing Technologies, Orono, Maine -- \$3,000,000

Currently, the majority of composite wind blades are manufactured in Asia and South America. However, the increasing demand for wind blades offers an opportunity for manufacturers in Maine and the United States to compete in this market. Prominent wind energy developers are seeking local suppliers of composite wind blades, with the rationale of reducing both the cost and carbon footprint associated with long-distance transportation of wind blades from foreign manufacturers to wind power sites in the United States. To respond to this opportunity, the University of Maine's Composites Center has developed a technology commercialization plan for Next-Generation Composite Wind Blades. This plan includes the development of advanced manufacturing that would reduce production labor and time by up to 50 percent and a recyclable, thermoplastic composite wind blade. This research has the potential to add hundreds of new jobs to Maine's distressed composite boatbuilding industry.

University of Maine, Offshore Wind Initiative, Orono, Maine -- \$5,000,000

With 80 percent of homes using heating oil, the largest percentage of any state in the United States, Maine is the most vulnerable State in the nation to the rise of crude prices. By 2018 the cost of energy (the sum of gasoline plus heating oil plus electricity) could reach 40 percent of the Maine household income. This looming crisis could be the worst in the State's history. Maine has the equivalent of 40 nuclear power plants of offshore wind energy within 50 nautical miles. According to professors at the University of Maine, if only 5 percent of this wind resource is captured, Maine could generate enough electricity to heat every home with heat pumps and to fill every plug-in electric vehicle in the state's 500,000 vehicle fleet. But, since the vast majority of the offshore wind resource in Maine and in the United States is located in deep water (>200ft depth), an offshore wind research center is needed to support development of floating platform technology to make this vision a reality. This would support such a research center.

The Maine Offshore Wind Initiative contributes directly to DOE's mission of improving national, energy and economic security. This funding would be leveraged by approximately \$3 million of additional investment from the State of Maine and commercial research and testing contracts.

**University of Maine at Presque Isle, Solar Energy Development, Presque Isle, Maine--
\$803,800**

This project would cover the design and installation of photo-voltaic solar panel arrays at the University of Maine at Presque Isle. Additionally, the establishment of an automated weather station to collect information on solar radiation levels in this northern region will provide needed baseline data for future use of solar energy and promote undergraduate research. The project will reduce electrical energy costs to the university, eliminate or reduce the need for additional air conditioning, provide a research and educational focus for the campus, and serve as a regional model for other businesses and schools.

**Upper Valley Economic Corporation, Development of Community Wind Projects in
Aroostook County, Maine, Sherman, Maine -- \$2,000,000**

Maine has had a burst of wind power development but the Maine landowners who host the facilities (often farmers) have not always participated in equity ownership. This project will promote community wind projects in Maine and foster local ownership as much as possible. These funds would provide for up-front development costs for up to 10 existing and future community wind projects in Aroostook County, Maine. This will provide construction and operation jobs, reduce local electricity costs, increase the local tax base, and contribute to the Maine and Federal goals of increasing renewable energy and reducing greenhouse gases.

**Wind Blades LLC, Commercialization of Highly Efficient, Green Technology: The
Composite Rotary Engine, Topsham, Maine -- \$4,000,000**

Funding would complete the research, development, tooling design and commercialization for the Composite Rotary Engine (CRE) and establish a manufacturing facility in Millinocket, Maine. The Composite Rotary Engine is a lightweight, compact engine which is more energy efficient and cleaner than current internal combustion engines. The CRE will power vehicles, railcars, and vessels and can also generate electricity. The project continues the collaborative effort of Wind Blades LLC in Topsham, Alion Science and Technology in Bath, and the University of Maine's Advanced Manufacturing Center in Orono.